

Industrial Hygiene Competency 4.7

Competency 4.7 Industrial hygiene personnel shall demonstrate a familiarity level knowledge of Department of Energy contract management and administration sufficient to appraise contractor organizations in the area of industrial hygiene.

1. Supporting Knowledge and Skills

- a. Discuss the key elements of the contractual relationship between the Department and the contractor and the process for preparing cost estimates and budgets.
- b. Describe the role of the industrial hygienist with respect to the evaluation of contractor industrial hygiene programs for the cost-plus award fee process.
- c. Describe the responsibilities of an industrial hygienist associated with contractor compliance with the Price Anderson Amendments Act.
- d. Using actual or hypothetical data for a industrial hygiene program, discuss the program's budget, schedule, appropriateness and impact on occupational health protection.

2. Self-Study Activities (Corresponding to the Intent of the Above Competency)

Below are two web sites containing many of the references you may need.

| Web Sites | | |
|-------------------------------|---|--|
| Organization | Site Location | Notes |
| Department of Energy | http://wastenot.inel.gov/cted/stdguido.html | DOE Standards, Guides, and Orders |
| U.S. House of Representatives | http://law.house.gov/cfr.htm | Searchable Code of Federal Regulations |

Read DOE Order 5480.19, *Guidelines for the Conduct of Operations at DOE Facilities*, Attachment I, Chapter 1, Operations Organization and Administration.

EXERCISE 4.7-A Identify the key elements and features of an effective DOE and operating contractor relationship.

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EXERCISE 4.10-B Discuss typical criteria, the performance measures, and means to communicate the importance of the contractor evaluation criteria.

EXERCISE 4.10-C Participate in an actual contractor evaluation performance cycle.

Review DOE 5700.2D, *Cost Estimating, Analysis, and Standardization*.

EXERCISE 4.7-D DOE Order 5700.2D, *Cost Estimating, Analysis, and Standardization*, provides several different methods for preparing cost estimates. Referring to the Order, describe them.

Read Sections 901.603-71 of the Department of Energy Acquisition Regulation (DEAR), Code of Federal Regulations (CFR), Title 48, Chapter 9.

EXERCISE 4.7-E Explain what industrial hygiene personnel (other than Contracting Officer's representatives) are supposed to do regarding the evaluation of industrial hygiene programs for the cost-plus-award fee process.

Read the information about the Price-Anderson Act presented in the Summary section of this study guide. This information was extracted from the *Federal Register* and Public Law 100-408, Price-Anderson Amendments Act.

Scan 10 CFR 830, *Nuclear Safety Management*.

EXERCISE 4.7-F Very broadly, what is the purpose of the Price-Anderson (Amendments) Act?

EXERCISE 4.7-G What are the implications of the Price-Anderson Act for 1) the DOE professional and 2) the contractor?

EXERCISE 4.7-H What is the impact of the Act upon the award-fee process?

Review DOE Order 4700.1, *Project Management System*.

NOTE: This Order will be phased out upon the incorporation of its contents into contracts or other agreements. It is presented here because its general content remains applicable.

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Scan DOE O 430.1, *Life-Cycle Asset Management*, Section 6, Requirements.

- EXERCISE 4.7-I Prepare a plan, budget, and schedule encompassing all the DOE standard activities for the following hypothetical project.
- In so doing, complete the second column of the attached checklist with your supervisor to determine what tasks you will need to describe and document
 - As you complete the tasks, fill out the column, “Complete (Y/N) & Comments”
 - Present your entire project package to your supervisor or site subject matter expert for evaluation

Project: As the assigned project manager for a subactivity of the following strategic system (i.e., **Build or Convert Facilities and Equipment to Reprocess Specific High-Level Radioactive Waste for Bio-Medical Application**); design, procure, install, check out, operate, and maintain an uninterruptible power supply (UPS).

| UPS PROJECT - COMPLETION CHECKLIST (Example) | | | |
|--|-------------------|---------------------------|---------------|
| DOE Standard Project Activities | UPS Project Tasks | Complete (Y/N) & Comments | Supervisor OK |
| Plan | | | |
| System design | | | |
| Work scope | | | |
| WBS | | | |
| Resources | | | |
| Budget | | | |
| Schedule | | | |
| Acquisition-Procurement | | | |
| Approval | | | |
| Bid spec. | | | |
| Bid | | | |
| Review bids | | | |

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| UPS PROJECT - COMPLETION CHECKLIST (Example) | | | |
|---|-------------------|------------------------------|---------------|
| DOE Standard Project Activities | UPS Project Tasks | Complete (Y/N) & Comments | Supervisor OK |
| Accept | | | |
| Purchase | | | |
| Receipt | | | |
| Installation, checkout, & acceptance testing | | | |
| Preparation- revision of ops. and maint. procedures, and drawings | | | |
| Preparation of trng. materials | | | |
| Staff training | | | |
| Execution | | | |
| Operation, maintenance, & surveillance | | | |
| Update of design docs. | | | |
| Control | | | |
| Configuration management | | | |
| QA | | | |
| Project mgt. | | | |
| Reporting | | | |

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3. Summary

Effective relationships between the Department and operating contractors are based in the site's conduct of operations. The organization and administration of operations should ensure that a high level of performance in DOE facility operations is achieved through effective implementation and control of operations activities. Effective implementation and control of operating activities are primarily achieved by establishing written standards in operations, periodically monitoring and assessing performance, and holding personnel accountable for their performance.

DOE Order 5700.2D, *Cost Estimating, Analysis, and Standardization*, defines cost estimate as:

“ . . . a statement of costs estimated to be incurred in the conduct of an activity such as a program, or the acquisition of a project or system.”

DOE personnel may be asked to participate in the contractor evaluation assessments or reviews or to supply input to those actually performing the review. The items that need to be reviewed from the line management perspective need to be for competitive sources are/were solicited, evaluated, and selected; standards are prescribed and met; performance or delivery is timely; estimated costs and fees are reasonable; and files are documented to substantiate the judgments, decisions, and actions taken.

Passage of the Price-Anderson Act in 1957, which amended the Atomic Energy Act of 1954, was intended primarily to assist the fledgling commercial nuclear industry, which was otherwise unable to insure itself due to its hazardous nature. Congress included government contractors under the legislation's coverage to provide the public with full protection for nuclear incidents, whether they occurred at government-owned facilities or at commercial nuclear power plants. Although Congress made indemnification of M&O contractors optional in the original Price-Anderson Act, the Atomic Energy Commission (AEC) routinely protected its contractors against all liability resulting from nuclear incidents. Additionally, by extending the role of government insurer into the nonnuclear area, the AEC provided contractual protection for all other activities at government-owned facilities.

The Price-Anderson Amendments Act of 1988 added Section 234A to the Atomic Energy Act to provide DOE with authority to assess civil penalties for violations of rules, regulations, or orders relating to nuclear safety by contractors and subcontractors who are indemnified by the Department, pursuant to Section 170 of the Atomic Energy Act. Any risks that are indemnified by the Government will not be considered as risk to the contractor. The net result of this Act is to provide for greater accountability of contractors, subcontractors, and suppliers in the performance of their duties under contract with DOE for the indemnified nuclear activities. The availability and careful exercise of this authority by DOE management and facility representatives

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can reduce the likelihood of serious nuclear incidents. For the contractor, there are opportunities as well to identify improvements to existing operations, facilities, and modifications in practices that can improve the health and safety of staff, the public, and the environment. To this end, the DOE professional:

- a. Oversees and provides direction to the contractor for the preparation of implementation plans in response to the new rules
- b. Monitors the contractor's adherence to the rules
- c. Brings potential non-compliances to supervisor or PAAA Coordinator
- d. Assists DOE HQ in determining contractor's liability and penalty (civil and/or criminal) for a violation

The contractor:

- a. Is required to prepare implementation plans for the new rules
- b. Is civilly and criminally liable for failing to adhere to the rules
- c. Is directly affected by its performance

Project management is a management approach in which authority and responsibility for execution are vested in a single individual. This approach provides focus on the planning, organization, direction, and control of all activities within the project. The project management plan is the document that sets forth the plans, organization, and systems that those responsible for managing the project shall utilize.

4. Exercise Solutions

EXERCISE 4.7-A Discuss the key elements of the contractual relationship between the Department and the contractor

ANSWER 4.7-A DOE personnel who use the contracting process to accomplish their programs must support the contracting officer in ensuring that:

- Competitive sources are solicited, evaluated, and selected
- Quality standards are prescribed and met
- Performance or delivery is timely
- Prices, estimated costs, and fees are reasonable
- Files are documented to substantiate the judgements, decisions, and actions taken

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EXERCISE 4.7-B Discuss typical criteria, the performance measures, and means to communicate the importance of the contractor evaluation criteria.

ANSWER 4.7-B

EXERCISE 4.7-C Participate in an actual contractor evaluation performance cycle.

ANSWER 4.7-C Contact your supervisor for instructions/coordination concerning a contractor performance evaluation.

EXERCISE 4.7-D DOE Order 5700.2D, *Cost Estimating, Analysis, and Standardization*, provides several different methods for preparing cost estimates. Referring to the Order, describe them.

ANSWER 4.7-D

| Cost Estimate Technique | Description |
|-------------------------|---|
| Bottoms-Up | “Generally, work statement and set of drawings or specifications are used to ‘takeoff’ material quantities required . . . in accomplishing a given operation or producing an equipment component. From these quantities, direct labor, equipment, and overhead costs are derived and added thereto.” (DOE Order 5700.2D, Attachment 1, 1) |
| Specific Analogy | These use the known cost of an item used in a prior system to estimate the cost of a similar item in the new system. Adjustments are then made to account for recognized differences in the two systems (i.e., design, complexity of performance, etc.). |
| Parametric | This requires historical databases on similar systems and uses statistical analysis to find correlations between the cost drivers and other system parameters. |
| Cost Review and Update | Previous estimates of the same project are examined for internal logic, completeness of scope, etc. |

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| Cost Estimate Technique | Description |
|-------------------------|---|
| Trend Analysis | Actual costs of work performed are compared to the original projected costs and a contractor efficiency index is derived. The index is then used to predict the cost of work not yet completed. |
| Expert Opinion | Specialists are consulted reiteratively until a consensus cost estimate is established. This is used in the absence of other data or techniques. |

EXERCISE 4.7-E Explain what industrial hygienist personnel (other than Contracting Officer's representatives) are supposed to do regarding the evaluation of contractor industrial hygienist programs for the cost-plus-award fee process.

ANSWER 4.7-E Program personnel who use the contracting process to accomplish their programs must support the contracting officer in ensuring that:

- Competitive sources are solicited, evaluated, and selected
- Quality standards are prescribed and met
- Performance or delivery is timely
- Prices, estimated costs, and fees are reasonable
- Files are documented to substantiate the judgements, decisions, and actions taken

EXERCISE 4.7-F Very broadly, what is the purpose of the Price-Anderson (Amendments) Act?

ANSWER 4-7-F To amend the Price-Anderson provisions of the Atomic Energy Act of 1954 to extend and improve the procedures for liability and indemnification for nuclear incidents, as well as contractor accountability.

EXERCISE 4-7-G What are the implications of the Price-Anderson Act for 1) the DOE professional and 2) the contractor?

ANSWER 4.7-G

1. a. Oversees and provides direction to the contractor for the preparation of implementation plans in response to the new rules
- b. Monitors the contractor's adherence to the rules

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- c. Brings potential non-compliances to supervisor or PAAA Coordinator
 - d. Assists DOE HQ in determining contractor's liability and penalty (civil and/or criminal) for a violation
2. a. Contractors are required to prepare implementation plans for the new rules.
- b. Contractors are civilly and criminally liable for failing to adhere to the rules.

EXERCISE 4.7-H What is the impact of the Act upon the award-fee process?

ANSWER 4.7-H Non-compliance and violations will likely be factored into the evaluation of contractor performance.

EXERCISE 4.7-I Prepare a plan, budget, and schedule encompassing all the DOE standard activities for the following hypothetical project.

- In so doing, complete the second column of the attached checklist with your supervisor to determine what tasks you will need to describe and document
- As you complete the tasks, fill out the column, "Complete (Y/N) & Comments"
- Present your entire project package to your supervisor or site subject matter expert for evaluation

ANSWER 4.7-I Solutions are dependent upon the initial data used. Review your completed checklist with your supervisor or site subject matter expert.